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show the same regularity in their autumn blossoming. Well developed blossoms of *Aquilegia Canadensis* were found near North Attleboro, Massachusetts, during the first weeks of October. *Geranium maculatum* was found at the same locality in September and August. *Corydalis sempervirens* appears more regularly near North Attleboro, Massachusetts, with thickened leaves, the petioles and stems almost succulent, and greenish, poorly developed flowers, of which a few occasionally reach their normal development. Autumnal blossoming is no new botanical feature, yet it seems worth while to place these notes on record in order that eventually it may be determined what plants are thus affected by our Indian summer, to what extent, and with what regularity.

AUG. F. FOERSTE.

Fig. 1. Leaf with a few small leaves and three roots as its base.

Fig. 2. Leaf with three roots and a number of small leaves at its base, from among which a branch has developed.

Fig. 3. Leaf at base of flowering racemes.

Fig. 4. Ordinary and usually emersed leaf.

Remarks upon Color as a Distinguishing Feature of Certain Species of Plants.*

By JOSEPH F. JAMES.

In considering the various points used in characterizing species of animals and plants, there is no one feature regarded as of less value and importance than color. The color of the epidermis and of the nacre of some species of *Unio*, is very uncertain. The colors of the black bass vary with its surroundings. Birds change their plumage and animals their pelage in winter so that it is different from what it is in summer. In the plant world occasional variations from the normal occur, so that white lobelias instead of blue, or white-flowered red clovers are not uncommon. But color in certain other and mostly small genera, is an important and frequently almost the sole distinction, certainly the one most easily perceived and recognized. As instances of this I shall cite a few examples.

In the district covered by Gray's Manual there are three spe-

*Read before the Botanical Club A. A. A. S., at the Toronto Meeting, Aug. 29-Sept. 3, 1889.

cies of *Petalostemon*, two of which are very similar in general characters. These are *P. candidus* and *P. violaceus*. They differ slightly in the size and number of their leaflets and in certain minor characters, but the main distinguishing feature is in the color of the flowers. In the first species these are *white*, and in the second they are *rose-purple*. The two species can be, and indeed are, recognized at a glance by their respective colors, but assurance can be made doubly sure by an inspection of the leaves.

Another instance is found in the two species of *Impatiens* native to our region. These are *I. biflora* and *I. aurea*. As in the former case the color of the flower distinguishes the species. In *fulva* it is mottled red, and in *pallida* it is yellow. In the leaves a slight difference is noticeable, these being larger in one than in the other, and in the position of the flower and the color of the stem there is also a difference. But in spite of these, which might here be called minor differences, the color is the main guide in separation.

A third example is found in the two species of *Melilotus*. One of these, *M. alba*, has white flowers, the other, *M. officinalis*, has yellow ones. Here almost the sole distinction is the color. The shape of the leaves varies slightly, but the color of the flowers comes first to separate the two species.

Still another example of this point is observed in the two species of *Datura*, namely, *D. Stramonium* and *D. Tatula*. In the first of these species the flowers are white, and in the second they are purple. The stem of the first is green and the second purple, so that here not only does the color of the flower form a characteristic feature, but that of the stem also. In other respects they are almost precisely alike, so much so that Gray remarks that one is thought to be specifically distinct from the other "on account of the behavior of the cross breeds." An ordinary student has not the time to inquire into the behavior of cross breeds. In the meanwhile he takes the color of the flowers as his distinguishing characteristic.

The genus *Baptisia* is, in this relation, an interesting one. There are five species in our district, and of the five only two are alike in color. *B. alba* and *leucantha* are white; *B. leucophæa*

is cream colored; *B. tinctoria* is yellow and *B. australis* is blue. It is true that in this case the color does not *alone* form a distinguishing feature, because the species differ in other respects. It is an instance in which both the xanthic and the cyanic series of colors are represented in the same genus.

Other examples of color distinguishing species of plants could doubtless be given. If we turn from flowers to fruits a few instances may be cited. In *Sambucus Canadensis* the fruit is a deep black. In *S. pubens* it is red. In other respects these plants are similar. In *Morus rubra* the fruit is red; in *M. alba* it is white. In *Actæa alba* the fruit is white and *A. spicata*, var. *rubra*, differs mainly from it in the different color of its fruit.

Even upon so inconstant and evanescent a character as *odor*, we find species occasionally separated, as is the case for example with *Philadelphus coronarius*, which is odorous, and *P. inodorus*, the name of which tells its character.

It is thus seen that even in so uncertain and generally so inconstant a character as color, we have sometimes a distinguishing feature. It is true that it is seldom the *sole* character, but certainly in the cases mentioned above it is the main one.

The Classification of Slight Varieties.

The other day I found near West Cliff in a damp meadow, some specimens of a form of *Sisyrinchium anceps*, differing in no respect from the type, except that the flowers are very pale bluish—so pale as to be almost white. Now this is rather interesting to me, more especially as of late I have been inquiring somewhat into the reasons of color mutations in flowers, and I should like to include it in my catalogue of Wet Mountain Valley plants, now preparing. How am I to enter it? Shall I say “a pale flowered variety?”—if I do, nobody will pay the least attention to it—or shall I call it “var. *pallidiflorum*” and bring upon me a cry of “name such a thing, just a color variety?!” Not that it particularly matters what I do, as the interest at present taken in “slight” varieties is itself slight enough, but suppose (as indeed I do suppose) that after all these slight mutations are quite important, and altogether worthy of study—being the fresh imprint of nature’s hand on plastic forms and parts, too fresh and